**Career Academy Integrated Unit Plan**

**Academy Name: HEMS**  **School: Atlantic HS**

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| Integrated Unit Plan Title: Scientific investigative processes |
| Courses to integrate: Intro Hort 2 and Environmental Science |
| Grade Level: 10 |
| Timeline & Duration: 2 hours or 2 class periods |

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| Unit Summary: environmental/hort 2 integration of scientific investigation and temp. and light effects on plant respiration |

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| **Overview of Activities/Lessons per Course** | | | | |
| Course |  | Hort 2 | Environmental Science |  |
| Activity/Lesson |  | Identify flaws in experiments that deal with plants in different amounts of light and temperature. Relate how the differences affect plant respiration | Discuss and explore scientific investigation |  |
| Activity/Lesson |  | Collaborate with partners and critique classmates observations and conclusions | Students will set up experiments using proper controls, variables and create a working hypothesis. |  |

**Lesson Instructions for Hort 2**

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| **Standards (Performance Tasks or Course Frameworks or Sunshine State Standards ):** Explain the process of respiration and the flow of energy in plants.  *LA.A.1.4.1, 2, 3, 4; LA.A.2.4.4; LA.B.1.4.1, 2, 3; LA.B.2.4.1, 2, 3; LA.C.1.4.1; LA.C.2.4.1; SC.B.1.4.1, 2; SC.D.1.4.1; SC.F.1.4.1, 2, 3, 7, 8; SC.G 1.4.2 SC.G.2.4.2 SC.G 2.4.5*  Describe the influence of light and temperature on plant growth.  . *LA.A.1.4.1, 2, 3, 4; LA.A.2.4.4; LA.B.1.4.1, 2, 3; LA.B.2.4.1, 2, 3; LA.C.1.4.1; LA.C.2.4.1; SC.B.1.4.1, 2; SC.D.1.4.1; SC.F.1.4.1, 2, 3, 7, 8; SC.G 1.4.2 SC.G.2.4.2 SC.G 2.4.5, SC.F 1.4.7*  **Rigor & Relevance (quadrant): 3** |
| **Instructions to Teacher:** (1) Set up 3 experiments, one with two independent variables(water and light), one with faulty controls of light, and one with faulty controls in temperature. Explain the various components of each experiment one at a time to groups of students. |
| **Instructions to Students: (1)** Work as partners and make observations about the various components of each experiment. Then as a team discuss and identify the possible mistakes made while conducting the experiment. Record the results of your observations on paper provided, and turn in to instructor. |
| **Instructions for Student Accommodations: group work and adjusted time constraints if needed** |
| **Assessment for Activity:** Take up and evaluate written observations of teams. Next class, teacher will return observations to different teams and have them collaborate and critique their classmates work. |
| **Approximate Length of Time for Activity:** Two class periods app. 2 hour |
| **Materials Needed:** clipboards, paper, pencil, potted plants, nursery benches, fan |
| **Resources Needed:**  **LCD projector, PC, etc.** |
| Attachments: Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Evaluation of Model Experiments  Student Instructions:  Observe experiments 1-3.  Identify the independent variable. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Identify the dependent variable.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Read the card identifying the experimental procedure and, based on our lessons on scientific investigation, record your observations on the validity of the experiment.   |  | | --- | |  | |  | |  | |  | |  | |  | |

**Lesson Instructions for Environmental Science**

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| **Standards (Performance Tasks or Course Frameworks or Sunshine State Standards ): *SC. 912.N.1.1* Define a problem and use scientific processes to investigate and draw conclusions**  **Rigor & Relevance (quadrant):** |
| **Instructions to Teacher:**   1. Instruct students on the proper methods of investigating problems using scientific processes. |
| **Instructions to Students:** Pose a question about the natural world, plan an investigation and design a valid experiment, then draw conclusions |
| **Instructions for Student Accommodations: extra instruction available during learning labs, peer tutoring, individual instruction** |
| **Assessment for Activity:** Periodically check student progress. |
| **Approximate Length of Time for Activity:** 4 weeks |
| **Materials Needed:** varies per student experiment |
| **Resources Needed:** |
| Attachments: |